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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,067	06/19/2002	Douglas L. Schulz	NREL 98-34	8457

7590 08/30/2010  
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EXAMINER
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VETERE, ROBERT A

ART UNIT	PAPER NUMBER
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1712

MAIL DATE	DELIVERY MODE
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08/30/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/088,067	<b>Applicant(s)</b> SCHULZ ET AL.	
	<b>Examiner</b> ROBERT VETERE	<b>Art Unit</b> 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/7/02</u> . | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1712

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.  
  
Claim 17 fails to further limit the claim from which it depends (i.e. claim 10).

### *Examiner's Comments*

The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. In re Herz, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976). MPEP § 2111.03. Because applicant has failed to specify the basic and novel characteristics associated with limiting the method to essentially the steps recited, the term "consisting essentially of" has been interpreted as "comprising."

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-2, 4-5, 9-11 and 13-14 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Kydd (US 5,882,722).

**Claims 1-2, 4-5, 9-11, 13-14 and 17:** Kydd teaches a method of forming an electrical conductor on a substrate consisting essentially of the steps: depositing nickel particles with a diameter of 5 nm (8:58-56) along with a metal carboxylate (8:1-43) in a solvent (7:1-7) on the substrate and annealing at a temperature of 185°C to decompose the composition and form a film bonded to the substrate (11:19-38).

Art Unit: 1712

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kydd.

**Claims 3 and 12:** Kydd teaches that annealing is performed by heating, but fails to teach that it is performed by photolytic action. The examiner takes official notice that photolytic action (e.g. use of infrared light) is a well known means of annealing. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected infrared light as the means of annealing in the method of Kydd with the predictable expectation of success.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kydd in light of Ott et al. (US 4,675,644).

**Claim 6:** Kydd teaches that the substrate for the printed circuit board can be ceramic (see, e.g., 5:35-36), but fails to expressly teach that the substrate is ZnO. Ott, however, teaches that a useful ceramic as the substrate layer in a printed circuit board is ZnO (Abst.). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected ZnO as the ceramic substrate in the method of Kydd with the predictable expectation of success because Ott explains that ZnO is a useful ceramic in printed circuit boards.

8. Claims 7-8 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kydd and Ott in light of Takamura et al. (US 4,666,742).

**Claims 7 and 15:** Kydd fails to teach that the metal decomposition complex comprises cyclooctadiene. Takamura teaches a method for forming a metal layer on a printed circuit board by depositing metal particles with an organic metal complex (Abst., 1:9-20) wherein the organic metal complex comprises cyclooctadiene (4:23-57) and nickel (4:58-63) and heating the complex to form the film (6:8-13). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention

Art Unit: 1712

was made to have selected cyclooctadiene as the metallo-organic decomposition compound in the method of Kydd with the predictable expectation of success because Takamura teaches that cyclooctadiene is known to be useful as such a compound for the deposition of conductive nickel on a printed circuit board.

**Claims 8 and 16:** Kydd also teaches that the annealing step takes 2 minutes (see, e.g., claim 7).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT VETERE whose telephone number is (571)270-1864. The examiner can normally be reached on Mon-Fri 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Vetere/  
Examiner, Art Unit 1712

/Michael Cleveland/  
Supervisory Patent Examiner, Art Unit 1712